REMARKS

New claims 48-51 have been added to this application. Accordingly, claims 1-16 and 24-51 are pending in this application. Applicants respectfully request reconsideration and allowance of the present application.

In the Office Action mailed May 16, 2007, claims 1-4, 9-13, 16, 24, 25, 30, 31, 35, 36, 40-44 and 47 were rejected under 35 U.S.C. §103(a) as being unpatentable over Malservisi et al. (U.S. Application Publication No. 2004/0115532 A1) in view of Tada et al. (U.S. Patent No. 5,209,995). Claims 5-8, 14, 15, 26-29, 32-34, 37-39, 45 and 46 were also rejected under 35 U.S.C. §103(a) as being unpatentable over Malservisi et al. in view of Tada et al. and further in view of Armacanqui et al. (U.S. Application Publication No. 2004/0033418 A1). Applicants respectfully traverse the rejections of claims 1-16 and 24-47 for the reasons set forth below.

Generally, Applicants submit that the Malservisi et al. reference discloses zinc powders for use in electrochemical cells; the Tada et al. reference discloses zinc alkaline cells; and the Armacanqui et al. reference discloses an alkaline cell with performance enhancing additives.

Claim 1 of the pending application recites an electrochemical cell having a container housing a first electrode, which defines a cavity. A separator lines the cavity and abuts the first electrode. A second electrode is disposed within the separator lined cavity. The second electrode has 1) a known volume and less than 50 ppm of mercury, 2) zinc powder having a tap density greater than 2.80 g/cc and less than 3.65 g/cc, 3) zinc powder occupying less than 28.0 volume percent of the second electrode's volume, and 4) zinc powder having a BET specific surface area greater than 400 cm^2/g. A quantity of alkaline electrolyte is disposed within the container and in contact with the electrodes and separator.

Claim 40 recites similar limitations as claim 1, but requires the second electrode to have 1) zinc powder having a tap density greater than 2.80 g/cc and less than 3.65 g/cc, 2) a BET surface area greater than 400 cm^2/g, 3) a KOH absorption value of at least 14%, and 3) a D_{50} less than 130 microns.

Claims 24, 30, and 35 recite an LR6 electrochemical cell having a cylindrical container housing a first electrode defining a centrally located cavity. These claims also recite a second electrode, a separator and a quantity of alkaline electrolyte. The recited second electrode has less than 50 ppm of mercury and comprises than 4.3 grams of zinc powder having a tap density between 2.80 g/cc and 3.65 g/cc.

Claims 1-16 and 24-47 all recite a zinc powder having a BET specific surface area at least greater than 400 cm^2/g (claims 12 and 43 further limit the BET specific surface area to be greater than 450 cm^2/g).

The requirements for making a *prima facie* case of obviousness are described in the *Manual of Patent Examining Procedures* (MPEP) §2143 as follows:

> In order to establish a *prima facie* case of obviousness, three criteria must be met. MPEP §706.02(j). Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 5 USPQ2d 1596 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 USPQ 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 USPQ 580 (C.C.P.A. 1974).

The combination of prior art references must have been "obvious to a person of ordinary skill in the art." *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742 (2007). In order to establish a *prima facie* case of obviousness, there must be some apparent reason why a person of ordinary skill in the art would combine the references, and the analysis should be made explicit. *Id.*

In the latest Office Action, the Examiner acknowledged that Malservisi et al. do not disclose BET specific surface area data. The Examiner asserted that the Tada et al. reference recognizes the benefit of changing the surface area of zinc particles of Malservisi et al. such that it would have been obvious to select the surface area within the range of that claimed by Applicants in order to provide sufficient reactivity. The Examiner stated:

> Tada et al. disclose zinc alkaline cells (title) wherein If [sic] the bulk specific gravity of the zinc alloy powder would be less than 2.90 (grams per cm.sup.3), on the one hand, the action of suppressing gasses from generating maY [sic] be reduced because the shapes of the zinc alloy powder particles may become so nearly acicular that the specific surface area of the zinc alloy powder particles becomes large enough to make their reactivity too high. If the bulk specific gravity thereof would be larger than 3.50 (grams per cm.sup.3), on the other hand, the discharge performance may be lowered because the shapes of the zinc alloy powder particles become so nearly spherical that their surface area becomes smaller, thereby making their reactivity too low (Col 2 lines 40-54).

Applicants submit that the Tada et al. reference does not disclose a zinc powder with a BET specific surface area greater than 400 cm^2/g. The portion of Tada et al. cited by the Examiner does not contain an express disclosure of a numeric range of BET specific surface area. The cited portion only expressly teaches a numeric range of bulk specific gravity, namely a range between 2.90 g/cm^3 – 3.50 g/cm^3, which is a different measurement than the BET specific surface area. Bulk specific gravity is expressed as g/cm^3, whereas BET specific surface area is expressed in cm^2/g.

Applicants further submit that the Tada et al. reference instead teaches away from the claimed limitation. As cited by the Examiner, the Tada et al. reference teaches that reactivity can become too low if the surface area of the particles becomes too small and that reactivity can become too high if the surface area of the particles becomes too large. The Tada et al. reference therefore implies that there is an upper limit and a lower limit to the surface area of particles which should be utilized in the zinc alkaline cell to achieve higher reactivity.

In contrast, all of the pending claims include a limitation that the BET specific surface area is at least greater than 400 cm^2/g. The Tada et al. reference fails to teach or even suggest a BET specific surface area with at least 400 cm^2/g. This claim limitation is distinguishable from the lack of any such teaching in Tada et al., which instead specifically teaches away from a large surface area to avoid reactivity becoming too high. Accordingly, Applicants submit that the combination of Malservisi et al. in view of Tada et al. (claims 1-4, 9-13, 16, 24, 25, 30, 31, 35, 36, 40-44 and 47) and further in view of Armacanqui et al. (claims 5-8, 14, 15,

26-29, 32-34, 37-39, 45 and 46) does not teach or suggest all the claim limitations and would not have rendered the pending claims obvious for at least the foregoing reasons.

Additionally, claim 4 of the pending application is further distinguishable from the cited references. In the Office Action, the Examiner represented that the Malservisi et al. reference teaches a zinc powder occupying 23.2 volume percent of the second electrode's volume. However, according to our calculations, the Malservisi et al. reference teaches a minimum of 24.7 volume percent of zinc powder. In the Office Action, the Examiner appears to have miscalculated the volume percent of zinc powder. First, the Examiner does not use the correct density for KOH. The density which is used in the Examiner's calculations is the density of KOH in solution. If the Examiner had separately calculated KOH, then the Examiner should have used the density of KOH as a solid, which is about 2.04 g/cc. Second, even if the Examiner had used the density of solid KOH, which the Applicants assert is incorrect, then the calculation still would have been incorrect. In combining a solid into a liquid solution, the volumes of the two components are not necessarily additive since the solid may dissolve into the solution. In this case, where KOH is added to a solution, the KOH will dissolve into the solution. In the Examiner's calculation, the Examiner combined the volume of KOH as if none of it had dissolved into the solution calculation.

Since the Examiner has not cited any references which teach an electrochemical cell comprising zinc powder occupying less than 24.0 volume percent of the second electrode's volume, Applicants submit that the Examiner has also not established a *prima facie* case of obviousness for at least claim 4. Thus, for at least these additional reasons, Applicants assert that claim 4 is allowable over the cited references. Applicants' new dependent claims 48-51 each likewise adds the further limitation that the volume of zinc occupies less than 24.0% of the second electrode's volume, which further distinguishes these claims from the cited amount.

Accordingly, Applicants have demonstrated that claims 1-16 and 24-51 would have been obvious to one of ordinary skill in the art in view of Malservisi et al. combined with Tada

et al., and further combined with Armacanqui et al., and the rejections of the claims under 35 U.S.C. §103(a) should therefore be withdrawn, which is respectfully solicited.

In view of the above remarks, it is submitted that claims 1-16 and 24-51 define patentable subject matter and are in condition for allowance, which action is respectfully solicited. If the Examiner has any questions regarding the patentability of any of the claims, the Examiner is encouraged to contact Applicants' undersigned attorney at the Examiner's convenience.

Respectfully submitted,

September 13, 2007
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